St. Croix Broadband Study 12/7/21



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EXECUTIVE SUMMARY

- Technical and Asset Analysis Demographic data, tower and fiber assets in the county, underserved and unserved areas of the county, and geo-coded survey results.
- Market, Current Use, and Gap Analysis A review of current service provider service offerings, speeds, and prices for those services and what bandwidth is available.
- Broadband Surveys In St. Croix County, both a residential broadband survey and a business broadband survey was distributed. A strong response was received.
- Connectivity Solutions This section provides an overview of various technologies, including both broadband wireless and broadband fiber.
- Preliminary Design and Cost Estimates Design and estimates of county-wide fixed-point wireless
 network and fiber designs and cost estimates for potential fiber projects.
- Infrastructure Funding and Grant Opportunities A discussion of grant and funding strategies.

BROADBAND SURVEY SUMMARY

The survey data collected as part of this study indicates that residents and businesses are anxious for better Internet service. Because a very large number of often passionate comments were received, they have been included in a separate document.

- 88% of respondents are interested in having access to Gigabit fiber Internet.
- 94% believe that local government should help facilitate better Internet access.
- 40% of residents report the quality of Internet service is affecting where they choose to live.
- 80% of businesses indicated that the Internet is important to the success of their business.
- 73% of businesses reported that they need employees able to work from home.

1) Develop a County-wide Broadband Strategy.

Use the findings and recommendations in this report to develop a multiyear set of goals that can be realistically achieved using a basket of local, state, and Federal funding. Commit to providing the grant writing resources needed to pursue every possible grant opportunity.

2) The County government should not be an Internet provider.

Instead, it should focus on developing public/private partnerships (PPPs). The County should identify candidate ISPs and WISPs as potential public/private partners.

3) Develop partnerships with WISPs and ISPs.

WISPS and ISPs should be provided a copy of this report, and then be invited to meet to provide input on what infrastructure investments would enable them to expand service most efficiently. The County can play an important role developing quality partnerships with these ISPs and WISPs. Careful distribution of Federal, state, and local funds to support these PPPs can accelerate the development of improved broadband and Internet infrastructure in the county, including both wider availability of fiber to the home and business and wider availability of fixed point wireless Internet services.

4) Improved and Affordable Fiber and Wireless is Needed.

Many residents and businesses rely heavily on poor DSL Internet access and need an alternative. Improving service provider access to more towers in the rural and underserved areas of the county will support improved Internet service. Expanded fixed point broadband wireless service is a critical strategic short term goal in the county, but widespread access to wired fiber access is critical to the long term economic growth of St. Croix county. Public/Private Partnership investments in middle mile and last mile fiber infrastructure is needed to accelerate fiber to the home services by ISPs and to improve performance and availability of fixed point wireless.

5) Seek Grant Funds.

The Federal government has been steadily increasing the amount of grant funding available for broadband infrastructure, with USDA and HUD both having programs that are designed to help underserved and unserved areas construct new broadband infrastructure. Some Federal grant applications will be due in mid-spring of 2022, so planning for submitting grant proposals should begin in early January 2022. Covid relief funding (ARPA, American Rescue Plan Act) should also become available in early 2022. Because ARPA funding is expected to exceed the previous Covid funding program (CARES), St. Croix's share of ARPA funds should be substantial and a portion of it could cover a large part of broadband infrastructure improvements via public/private the needed partnerships with ISPs and WISPs.

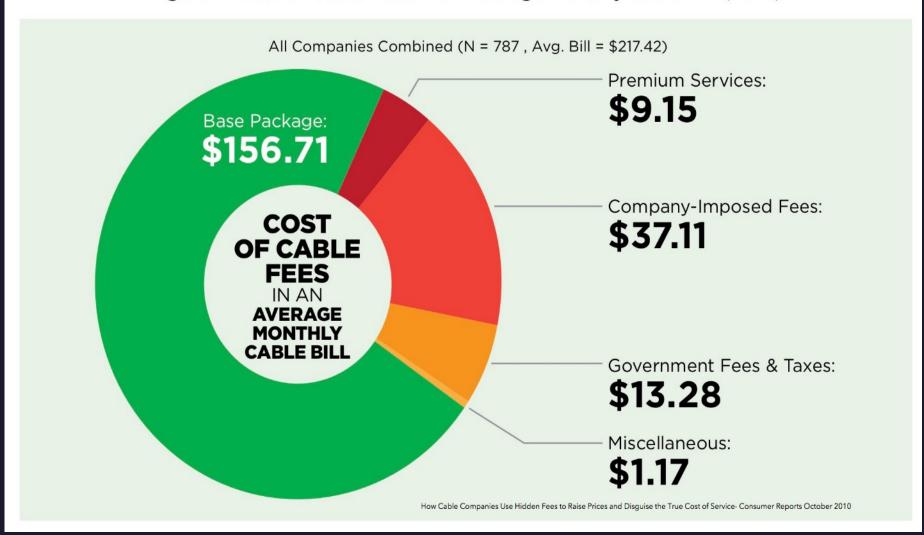
6) Manage Expectations.

The current deficiencies in Internet access in the county took decades to develop, and the proposed improvements should be approached as a multi-year process, with an expectation of substantial improvements in access and availability in twelve to eighteen months.

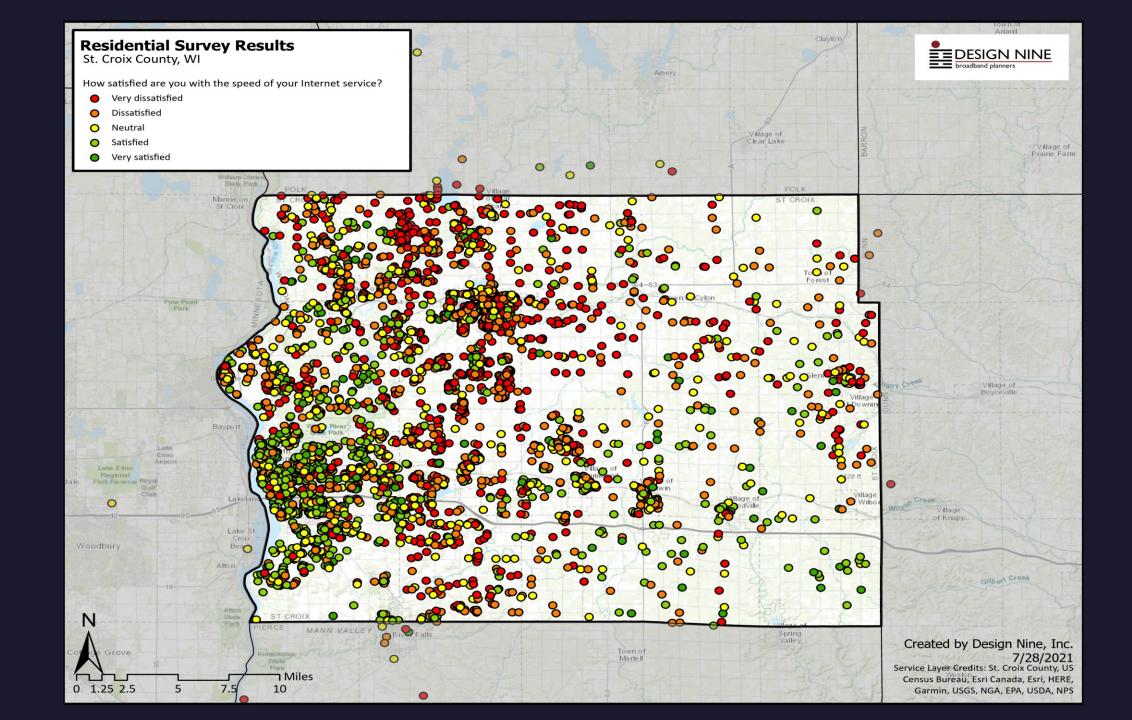
7) Develop a long-term funding strategy.

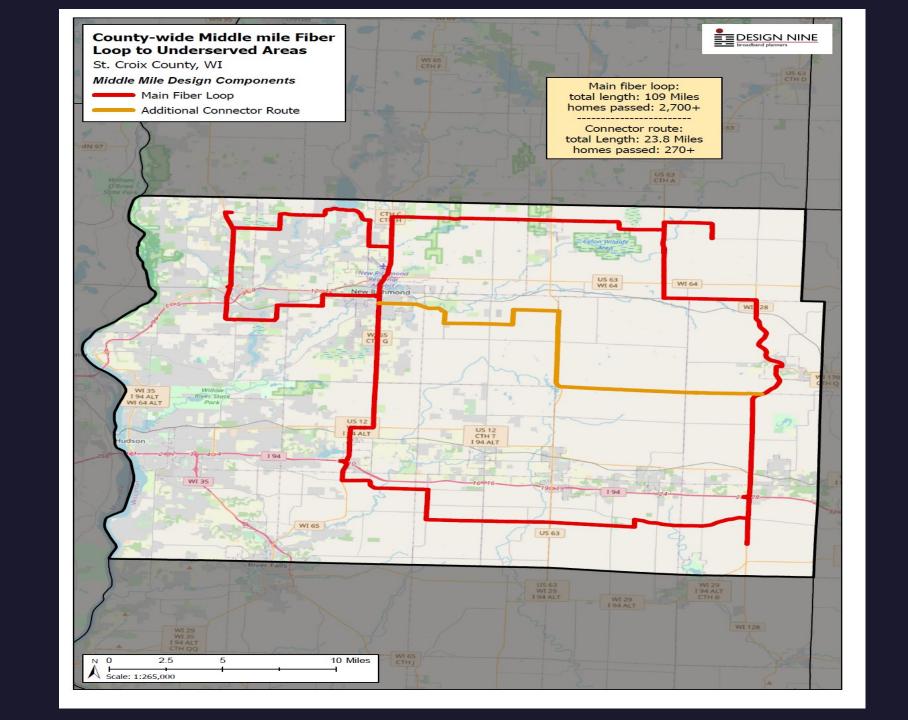
Grants may not provide sufficient funds to reach the County's longterm goals. Evaluate longer term funding strategies, like using a special assessment, or implementing a very small increase in property taxes. Revenue would be earmarked exclusively for broadband improvements. Expansion of broadband in St. Croix will be successful by recognizing that funding will come from a range of funding sources rather than a single source. Grants, public/private partnerships, some local funds, and other sources may all be needed to achieve success.

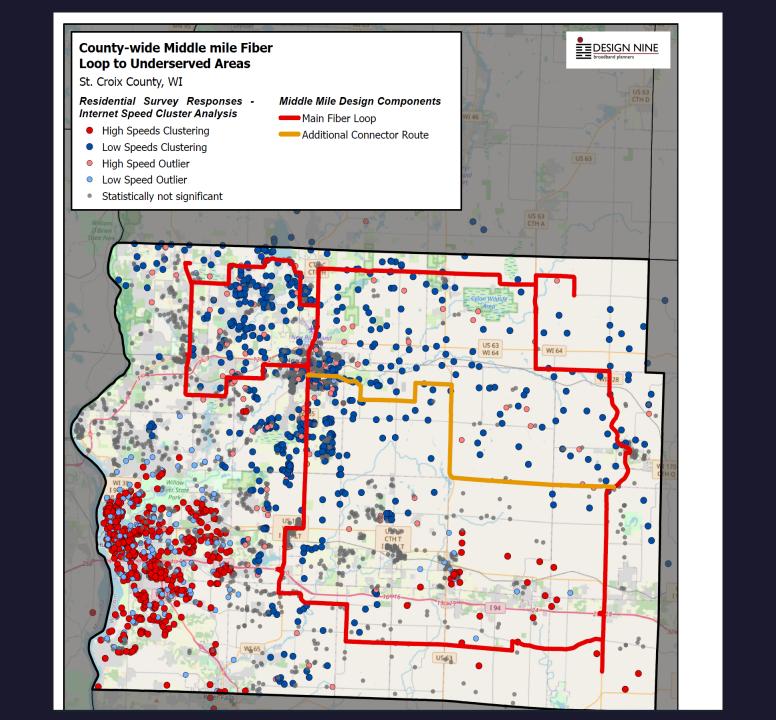
Figure A: Cost of Cable Fees in an Average Monthly Cable Bill (2018)

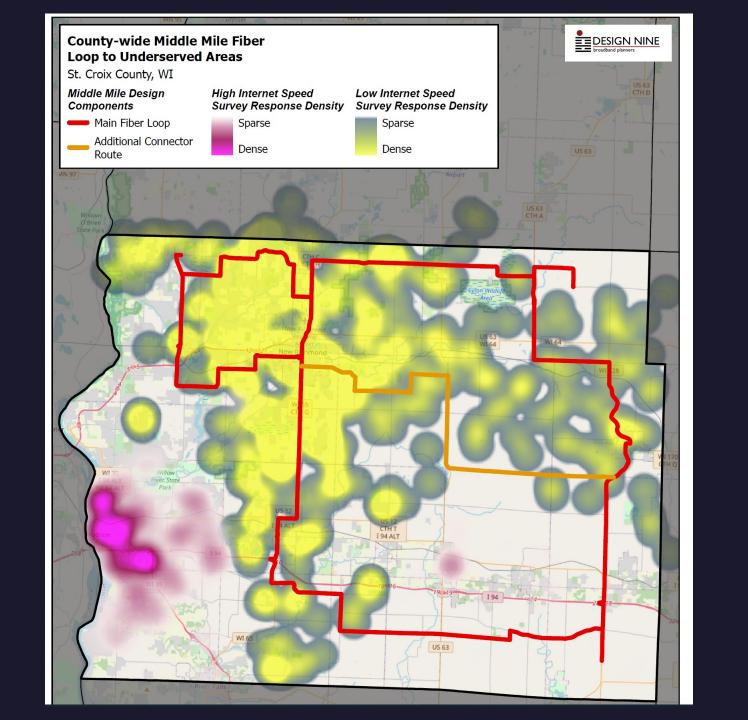


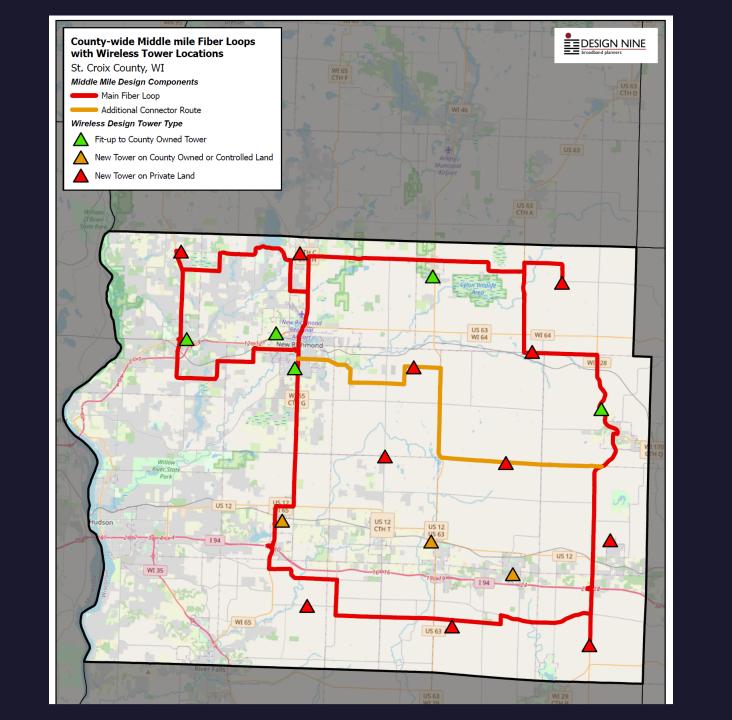
St. Croix County 30 Year Estimated Telecom Expenditures				
Total Households	34,182			
Businesses	2,304			
Estimated Internet Access Type	Households using Cell Phone for Internet	Households with "little" broadband DSL	Households with Cable Modems	Households with no Internet
Household Percentage	9%	42%	32%	17%
Number of households	3,076	14,356	10,938	5,811
Average monthly telecom expenditures	Cell Phone for Voice/Internet \$90 Cable/satellite TV: \$65 bundle	Cell Phone \$70 Phone: \$13 Satellite TV: \$60 Broadband Internet: \$45	Cell Phone \$70 Phone \$15 TV \$43 Broadband Internet \$45	Cell Phone, no Internet, \$70 Cable/satellite TV: \$65
Monthly Cost of Services	\$155	\$188	\$173	\$135
Annual household cost	\$1,860	\$2,256	\$2,076	\$1,620
Annual cost all households	\$5,722,067	\$32,388,129	\$22,707,786	\$9,413,723
30 year expenditure	\$171,662,004	\$971,643,859	\$681,233,587	\$282,411,684
Total residential expenditures	\$2,106,951,134			
Total Estimated Cost of Hidden Fees	\$310,608,553			
Total Business Costs	\$143,078,400			
Total expenditures	\$2,560,638,087			











St. Croix County Middle Mile Dark Fiber Main Loop Route Overview

0		ITEM/PROJECT	VALUE
1	Miles of Fiber / Conduit In	stalled	109.05
2	Number of Handholes Inst	talled	720
3	Splice Closures Installed		720
4	Cabinets Installed		22
5	Number of Buildings Conr	nected	540
6	Take Rate - Percentage of t	the Buildings Passed who are connected	20%
7	Aerial - Percentage of construction expected to be installed on utility poles.		2%
8	Trenching - Percentage of construction installed by trenching		5%
9	Boring - Percentage of construction installed by horizontal drilling.		28%
10	Slot Cutting - Conduit installed in street by special methods.		0%
11	Rock Saw - Required where rock prevents the use of other methods.		0%
12	Direct Bury - Conduit installed by direct bury methods (plow, vibratory plow) 65		65%
13	Aerial Info	2% Aerial is estimated to account for water body crossings obstacles to construction.	and other
14	Other Notes	Estimated labor rates are based upon common rates seen f medium sized rural projects.	or recent

St. Croix County Middle Mile Dark Fiber Main Loop Cost Summary

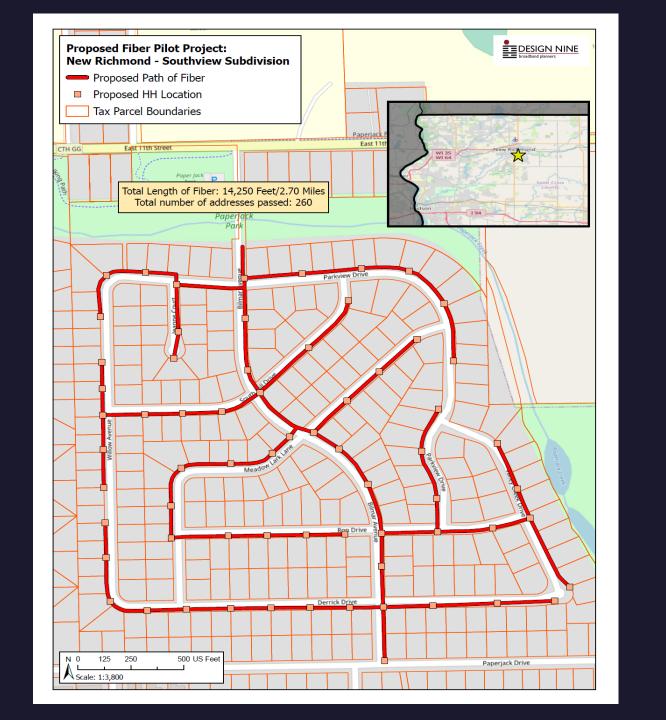
0	ITEM/PROJECT	ESTIMATED
1	St. Croix Middle Mile Dark Fiber Main Loop Construction Materials	\$2,629,264
2	St. Croix Middle Mile Dark Fiber Main Loop Distribution Labor	\$5,676,574
3	St. Croix County Middle Mile Dark Fiber Main Loop Structures, Cabinets, and Equipment	\$407,660
4	St. Croix Middle Mile Dark Fiber Main Loop Drop Construction	\$555,850
5	Network Construction Subtotal	\$9,269,348
6	Project Mgmt, Network Engineering, Integration, and Testing	\$1,112,322
7	Misc Fees, Advertising, Technical Services	\$92,693
8	Bookkeeping and Administration	\$69,520
9	Engineering, Permitting	\$834,887
10	Legal Costs	\$23,173
11	Other Costs Subtotal	\$2,132,596
12	Project Total	\$11,401,944
13	Contingency at 5%	\$570,097
14	Project Total (with contingency)	\$11,972,041

The tables below provide the cost estimate for the connector loop in the east-center area of the St. Croix County Middle Mile Fiber Connector Route Route Overview

0		ITEM/PROJECT	VALUE
1	Miles of Fiber / Conduit In:	stalled	23.82
2	Number of Handholes Inst	alled	158
3	Splice Closures Installed		158
4	Cabinets Installed		5
5	Number of Buildings Conr	nected	54
6	Take Rate - Percentage of t	he Buildings Passed who are connected	20%
7	Aerial - Percentage of construction expected to be installed on utility poles.		2%
8	Trenching - Percentage of construction installed by trenching		5%
9	Boring - Percentage of construction installed by horizontal drilling.		28%
10	Slot Cutting - Conduit installed in street by special methods.		0%
11	Rock Saw - Required where rock prevents the use of other methods.		0%
12	Direct Bury - Conduit installed by direct bury methods (plow, vibratory plow) 659		65%
13	Aerial Info	2% Aerial is estimated to account for water body crossings a obstacles to construction.	and other
14	Other Notes	Estimated labor rates are based upon common rates seen formedium sized rural projects.	or recent

St. Croix County Middle Mile Fiber Connector Route Cost Summary

0	ITEM/PROJECT	ESTIMATED
1	St. Croix County Middle Mile Fiber Connector Route Construction Materials	\$557,719
2	St. Croix County Middle Mile Fiber Connector Route Distribution Labor	\$1,244,539
3	St. Croix County Middle Mile Fiber Connector Route Structures, Cabinets, and Equipment	\$92,650
4	St. Croix County Middle Mile Fiber Connector Route Drop Construction	\$55,225
5	Network Construction Subtotal	\$1,950,133
6	Project Management, Network Engineering, Integration, and Testing	\$234,016
7	Misc Fees, Advertising, Technical Services	\$19,501
8	Bookkeeping and Administration	\$14,626
9	Engineering, Permitting	\$182,366
10	Legal Costs	\$4,875
11	Other Costs Subtotal	\$455,385
12	Project Total	\$2,405,518
13	Contingency at 5%	\$120,276
14	Project Total (with contingency)	\$2,525,794



New Richmond - St.Croix County WI-Southview Neighborhood Route Overview

0		ITEM/PROJECT	VALUE
1	Miles of Fiber / Conduit In:	stalled	2.7
2	Number of Handholes Inst	alled	66
3	Splice Closures Installed		46
4	Cabinets Installed		1
5	Number of Buildings Conr	nected	91
6	Take Rate - Percentage of t	he Buildings Passed who are connected	35%
7	Aerial - Percentage of construction expected to be installed on utility poles.		2%
8	Trenching - Percentage of construction installed by trenching		5%
9	Boring - Percentage of construction installed by horizontal drilling.		73%
10	Slot Cutting - Conduit installed in street by special methods.		0%
11	Rock Saw - Required where rock prevents the use of other methods.		0%
12	Direct Bury - Conduit installed by direct bury methods (plow, vibratory plow) 209		20%
13	Aerial Info	2% Aerial is estimated to account for water body crossings a obstacles to construction.	and other
14	Other Notes	Estimated labor rates are based upon common rates seen f medium sized rural projects.	or recent

New Richmond - St.Croix County WI-Southview Neighborhood Cost Summary

0	ITEM/PROJECT	ESTIMATED
1	New Richmond - St.Croix County WI-Southview Neighborhood Construction Materials	\$99,509
2	New Richmond - St.Croix County WI-Southview Neighborhood Distribution Labor	\$244,556
3	New Richmond - St.Croix County WI-Southview Neighborhood Structures, Cabinets, and Equipment	\$26,030
4	New Richmond - St.Croix County WI-Southview Neighborhood Drop Construction	\$93,613
5	Network Construction Subtotal	\$463,707
6	Project Management, Network Engineering, Integration, and Testing	\$55,645
7	Misc Fees, Advertising, Technical Services	\$4,637
8	Bookkeeping and Administration	\$3,478
9	Engineering, Permitting	\$20,671
10	Legal Costs	\$1,159
11	Other Costs Subtotal	\$85,590
12	Project Total	\$549,298
13	Contingency at 5%	\$27,465
14	Project Total (with contingency)	\$576,762

WISCONSIN FUNDING OPPORTUNITIES

The Wisconsin legislature has been evaluating legislation to improve broadband access in the state. The bills are designed to make it easier and less expensive to build broadband infrastructure in underserved parts of the state. Wisconsin has created a state level Broadband Office that is coordinating and managing both state and Federal funding programs. In early 2021, Governor Evers committed nearly \$200 million for broadband, and in 2021 the Broadband Office awarded tens of millions in broadband funds to Wisconsin towns, counties, and ISPs. Most awards required some match; awards to ISPs typically required much higher match amounts than awards to local governments.

ARPA (AMERICAN RESCUE PLAN ACT) FUNDING

The American Rescue Plan Act of 2021, is the biggest federal funding program for broadband projects. ARPA has \$350 billion in funding. Each state receives an ARPA fund allocation, and how much is targeted toward broadband initiatives will be decided by a state legislative committee and/or the governor of the state.

The 2020 CARES (Coronavirus Aid, Relief, and Economic Security Act) funding was typically distributed by state governments to localities (e.g. counties, towns, cities), which were then able to make decisions on how to spend the money within both the state and Federal guidelines attached to the funds.

ARPA funding has fewer requirements and "strings" attached than many other Federal broadband grant programs, and St. Croix County should make obtaining ARPA funds for county broadband projects a priority in late 2021 and early 2022.

INFRASTRUCTURE INVESTMENT & JOBS ACT

The act provides \$65 billion in new funding for expanding broadband infrastructure and promoting its adoption. States are at the center of infrastructure funding that is coming down the pipeline from the federal government. The \$42.5 billion construction portion of the act is called the Broadband Equity, Access, and Deployment program, known as BEAD, requires each state to generate a five-year action plan laying out how it will use the funds, including a process for prioritizing locations that are classified as "unserved" or "underserved."